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EXAMINER	
MULL, FRED H	

ART UNIT	PAPER NUMBER
3662	

DATE MAILED: 10/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	09/993,108	ZHAO, YILIN	
	Examiner	Art Unit	
	Fred H. Mull	3662	

-- The MAILING DATE f this c mmunication appears on the cover sh et with the c rresp ndence address --

Peri d for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disp sition of Claims

4)☒ Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-21 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 06 November 2001 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Pri rity under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings, Specification and Claim Objections

1. Fig. 4 is objected to. In order to keep straight all the different types of altitudes and make the figure more clear, box 420 should be changed to something like --Use coarse altitude to estimate 3D location including a derived altitude--. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The disclosure is objected to because of the following informalities:

On p. 4, line 26, "derive" should be changed to --determine--. This paragraph is discussing the course altitude, but the phrase "derive an altitude" may cause confusion with term "derived altitude" defined in the next paragraph.

On p. 3, line 23, "referenced altitude" should be changed to --reference altitude--.

Appropriate correction is required.

3. The drawings, specification, and claims are objected to because it is often unclear which of the various types of "location" is being discussed. Please use the term --estimated location-- when the estimated location is being discussed. This would include in Fig. 2, changing 200 to read "Estimating an estimated location" or "Determining an estimated location". This may be a little redundant, but referring to the estimated location everywhere as the "estimated location" will make things a whole lot more clear. A reference to the final location that is being accepted as "the" location should be referred to as the "final location". And intermediate locations, such in 220, should be referred to as an "intermediate location" or something else reasonable. 230

would then read "Refine intermediate location". If there is no need to refine the intermediate location, then the final location can be set equal to the last intermediate location. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In lines 1-2, the claim refers to a "3-dimensional location". It is not clear if this is the "estimated location" from the current iteration or the "final location" from the previous iteration.

Determining the reference altitude of the receiver from the derived altitude is simply setting the reference altitude equal to the altitude in the previous determined (estimated or final) location, correct (p. 4, lines 4-8)? If an altitude sensor were being used, the derived altitude would not be needed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

5. Claims 1-4, 6-9, and 15-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Fuchs.

In regard to claim 6, Fuchs discloses determining an estimated location of the receiver; determining a reference altitude of the receiver based upon the estimated location of the receiver (column 13, lines 15-21); and determining a new location of the receiver based upon the reference altitude information received (column 13, line 66 to column 14, line 7).

In regard to claim 7, Fuchs further discloses determining the reference altitude of the receiver by using the estimated location to index the reference altitude in a map database (column 13, lines 17-21).

In regard to claim 8, Fuchs further discloses determining the estimated location of the receiver based upon a coarse altitude of the receiver (column 6, lines 38-42), where the coarse estimated position inherently includes a coarse altitude.

In regard to claim 9, Fuchs further discloses determining a derived altitude from a 3D estimated location of the receiver, determining the new location of the receiver if a difference between the derived altitude and the reference altitude of the receiver is outside an altitude threshold (column 14, lines 47-55).

In regard to claim 1, Fuchs further discloses transmitting the estimated location to a network and receiving from the network altitude information based upon the estimated location of the receiver (column 13, line 18-19).

In regard to claim 2, the estimated location inherently contains an estimated, coarse altitude as one component of the location vector. From the disclosure of the application (p. 4, line 17 to p. 5, line 5), there is no more disclosed than this. It appears that the coarse altitude is just plugged in as part of the estimated location.

In regard to claim 3, Fuchs further discloses determining a derived altitude based upon the estimated location of the receiver, determining the new location of the receiver if a difference between the derived altitude and the reference altitude of the receiver is outside an altitude threshold (column 14, lines 47-55).

In regard to claim 4, Fuchs further discloses requesting and receiving the coarse altitude from the network (column 6, lines 43-51).

In regard to claim 15, Fuchs discloses determining an estimated location of the receiver based upon a coarse altitude (column 6, lines 38-42; where the estimated location inherently contains an estimated, coarse altitude as one component of the location vector as discussed with regard to claim 2 above); transmitting the estimated location of the receiver to a network (column 6, lines 39-42); determining a reference altitude of the receiver at the network based upon the estimated location of the receiver (column 2, lines 10-14; column 13, lines 15-21); and determining a new location of the receiver based upon the reference altitude of the receiver (column 13, line 66 to column 14, line 7).

In regard to claim 16, Fuchs further discloses determining the reference altitude of the receiver by using the estimated location to index the reference altitude of the receiver in a map database on the network (column 13, lines 15-21).

In regard to claim 17, the estimated location inherently contains an estimated, coarse altitude as one component of the location vector. From the disclosure of the application (p. 4, line 17 to p. 5, line 5), there is no more disclosed than this. It appears that the coarse altitude is just plugged in as part of the estimated location.

In regard to claim 18, Fuchs further discloses determining a derived altitude from the estimated location, determining the new location of the receiver if a difference between the derived altitude and the reference altitude of the receiver is outside an altitude threshold (column 14, lines 47-55).

In regard to claim 19, Fuchs further discloses the new location is determined at the network (column 2, lines 10-14; column 13, lines 15-21).

In regard to claims 20-21, Fuchs further discloses determining a derived altitude from the estimated location, transmitting satellite information used to determine the estimated location of the receiver to the network, determining a difference between derived altitude and reference altitude, determining a correction location of the receiver based upon the satellite information and the difference (column 2, lines 1-14; column 14, lines 47-55).

6. Claims 1-2 and 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by IDS Document Brown.

In regard to claims 6, Brown discloses determining an estimated location of the receiver (column 5, lines 5-9); determining a reference altitude of the receiver based upon the estimated location of the receiver; and determining a new location of the receiver based upon the reference altitude information received (column 7, lines 9-11).

In regard to claim 7, Brown further discloses determining the reference altitude of the receiver by using the estimated location to index the reference altitude in a map database (column 7, lines 9-11).

In regard to claim 8, Brown further discloses determining the estimated location of the receiver based upon a coarse altitude of the receiver (column 5, lines 5-9), where the coarse estimated position inherently includes a coarse altitude.

In regard to claim 1, Brown further discloses transmitting the estimated location to a network and receiving from the network altitude information based upon the estimated location of the receiver (column 4, line 67 to column 5, line 16l column 7, lines 9-11).

In regard to claim 2, the estimated location inherently contains an estimated, coarse altitude as one component of the location vector. From the disclosure of the application (p. 4, line 17 to p. 5, line 5), there is no more disclosed than this. It appears that the coarse altitude is just plugged in as part of the estimated location.

7. Claims 6 and 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayashi (US).

In regard to claims 6, Hayashi discloses determining an estimated location of the receiver (column 3, lines 38-39; where the last four-satellite position is being used as the estimated

location); determining a reference altitude of the receiver based upon the estimated location of the receiver (column 3, line 38; where either (a) H_G can be considered the reference altitude or (b) H can be considered the reference altitude); and determining a new location of the receiver based upon the reference altitude information received (column 3, lines 36, 42-44; where in case (a) the final location determination is calculating H and using it to determine the final position, or in case (b) the final location determination is using the previously calculated H to determine the final position).

In regard to claim 8, Hayashi further discloses determining the estimated location of the receiver based upon a coarse altitude of the receiver (column 3, lines 38-39), where the coarse estimated position inherently includes a coarse altitude.

In regard to claim 9, Hayashi further discloses determining a derived altitude from a 3D estimated location of the receiver, determining the new location of the receiver if a difference between the derived altitude and the reference altitude of the receiver is outside an altitude threshold (column 4, lines 46-68).

8. Claims 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by IDS Document Sheynblat (US 6,061,018 A).

In regard to claim 6, Sheynblat discloses determining an estimated location of the receiver (column 9, lines 30-33; 301, Fig. 5); determining a reference altitude of the receiver based upon the estimated location of the receiver (column 9, lines 33-38; 305); and determining a new location of the receiver based upon the reference altitude information received (column 9, lines 48-49; 303).

In regard to claim 7, Sheynblat further discloses determining the reference altitude of the receiver by using the estimated location to index the reference altitude in a map database (column 9, lines 35-38).

In regard to claim 8, Sheynblat further discloses determining the estimated location of the receiver based upon a coarse altitude of the receiver (column 9, lines 30-33; 301), where the coarse estimated position inherently includes a coarse altitude.

In regard to claim 9, Sheynblat further discloses determining a derived altitude from a 3D estimated location of the receiver, determining the new location of the receiver if a difference between the derived altitude and the reference altitude of the receiver is outside an altitude threshold (column 11, lines 29-48).

9. Claims 6-8 and 11-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Fernandez-Corbaton.

In regard to claim 6, Fernandez-Corbaton discloses determining an estimated location of the receiver (column 6, line 54 to column 7, line 6); determining a reference altitude of the receiver based upon the estimated location of the receiver (column 8, lines 52-55, lines); and determining a new location of the receiver based upon the reference altitude information received (column 7, lines 45-51).

In regard to claim 7, Fernandez-Corbaton further discloses determining the reference altitude of the receiver by using the estimated location to index the reference altitude in a map database (column 8, lines 53-54).

In regard to claim 8, Fernandez-Corbaton further discloses determining the estimated location of the receiver based upon a coarse altitude of the receiver (column 6, line 54 to column 7, line 6), where the coarse estimated position inherently includes a coarse altitude.

In regard to claim 12, Fernandez-Corbaton further discloses storing a most recent 3D location of the receive on the receiver, computing a derived altitude from the most recent 3D location, determining the reference altitude of the receiver from the derived altitude (column 8, lines 53-55)

In regard to claim 11, Fernandez-Corbaton further discloses storing a most recent 3D location fixes of the receive on the receiver, determining the reference altitude of the receiver with the estimated location by averaging 3D location fixes stored on the receiver (column 8, lines 53-55)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 5 and 10-14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fuchs in view of Nelson.

In regard to claim 12, Nelson discloses storing a most recent 3D location of the receiver, and computing a derived altitude from the most recent 3D location (column 3, line 16-19). It would be obvious to use this simple method of Nelson for situation where the server of Fuchs is

down or a communication connection is unavailable in order to prevent the user from losing position determination capability at those times. In emergency situations, some indication of position is better than no indication at all.

In regard to claim 11, it would be obvious to average several previous 3D location fixes in order to avoid basing the reference altitude on a single anomalous reading, but by including several reading which should have a less chance of all being anomalous.

In regard to claims 5, 10, and 13-14, Nelson further discloses projecting altitude from an altitude velocity determined by a series of previous full 4-satellite fixes in order to update the estimated location (column 3, 16-21). For a land vehicle, determining altitude velocity is equivalent to determining terrain slope information.

11. Claims 5 and 10-14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brown in view of Nelson.

In regard to claim 12, Nelson discloses storing a most recent 3D location of the receiver, and computing a derived altitude from the most recent 3D location (column 3, line 16-19). It would be obvious to use this simple method of Nelson for situation where the master station of Brown is down or a communication connection is unavailable in order to prevent the user from losing position determination capability at those times. In emergency situations, some indication of position is better than no indication at all.

In regard to claim 11, it would be obvious to average several previous 3D location fixes in order to avoid basing the reference altitude on a single anomalous reading, but by including several reading which should have a less chance of all being anomalous.

In regard to claims 5, 10, and 13-14, Nelson further discloses projecting altitude from an altitude velocity determined by a series of previous full 4-satellite fixes in order to update the estimated location (column 3, 16-21). For a land vehicle, determining altitude velocity is equivalent to determining terrain slope information.

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi.

In regard to claim 7, Hayashi discloses determining the reference altitude of the receiver by using a manometer (column 3, lines 39-40). In the background section, Hayashi discloses as known that altitude obtained from a manometer is interchangeable from a reference altitude in a map database indexed to an estimated location (column 1, lines 46-51). It would be obvious to include a map database as a backup in cause the manometer sensor fails, and as a check of the manometer, since a change of pressure may also indicate a change in weather as well as a change in altitude.

13. Claims 10-14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi in view of Nelson.

In regard to claim 12, Nelson discloses storing a most recent 3D location of the receiver, and computing a derived altitude from the most recent 3D location (column 3, line 16-19). It would be obvious to use this simple method of Nelson for situation where the manometer of Hayashi is down in order to prevent the user from losing position determination capability at those times. In emergency situations, some indication of position is better than no indication at all.

In regard to claim 11, it would be obvious to average several previous 3D location fixes in order to avoid basing the reference altitude on a single anomalous reading, but by including several reading which should have a less chance of all being anomalous.

In regard to claims 10 and 13-14, Nelson further discloses projecting altitude from an altitude velocity determined by a series of previous full 4-satellite fixes in order to update the estimated location (column 3, 16-21). For a land vehicle, determining altitude velocity is equivalent to determining terrain slope information.

14. Claims 10-14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sheynblat in view of Nelson.

In regard to claim 12, Nelson discloses storing a most recent 3D location of the receiver, and computing a derived altitude from the most recent 3D location (column 3, line 16-19). It would be obvious to use this simple method of Nelson for situation where the location server of Sheynblat (column 9, line 21) is down or a communication connection is unavailable in order to prevent the user from losing position determination capability at those times. In emergency situations, some indication of position is better than no indication at all.

In regard to claim 11, it would be obvious to average several previous 3D location fixes in order to avoid basing the reference altitude on a single anomalous reading, but by including several reading which should have a less chance of all being anomalous.

In regard to claims 10 and 13-14, Nelson further discloses projecting altitude from an altitude velocity determined by a series of previous full 4-satellite fixes in order to update the

estimated location (column 3, 16-21). For a land vehicle, determining altitude velocity is equivalent to determining terrain slope information.

15. Claims 10 and 13-14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fernandez-Corbaton in view of Nelson.

In regard to claims 10 and 13-14, Nelson discloses storing a most recent 3D location of the receiver, and computing a derived altitude from the most recent 3D location (column 3, line 16-19). Nelson further discloses projecting altitude from an altitude velocity determined by a series of previous full 4-satellite fixes in order to update the estimated location (column 3, 16-21). For a land vehicle, determining altitude velocity is equivalent to determining terrain slope information.

16. The examiner also finds the following references relevant:

Minter, who additionally discloses refining a location using an estimated location and an estimated altitude, and use of a terrain elevation database (columns 3-4).

Hayashi (EP), the European Patent version of Hayashi (US).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred H. Mull whose telephone number is 703-305-1250. The examiner can normally be reached on M-F 9:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H. Tarcza can be reached on 703-360-4171. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9326 for regular communications and 703-872-9327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

Fred H. Mull
Examiner
Art Unit 3662

FHM
September 26, 2002

THOMAS H. TARCZA
SUPERVISORY PATENT EXAMINER
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